

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claim 1 (Currently Amended) A method of forming a nitride-based semiconductor layer, comprising the steps of:

growing a buffer layer of $\text{Al}_x\text{Ga}_{1-x}\text{N}$ ($0 \leq x \leq 1$) on a substrate at a growth rate of at least 16 \AA/sec ; and

growing a nitride-based semiconductor layer of $\text{Al}_a\text{B}_b\text{In}_c\text{Tl}_d\text{Ga}_{1-a-b-c-d}\text{N}$ ($0 \leq a < 1$, $0 \leq b < 1$, $0 \leq c < 1$, $0 \leq d < 1$, $a+b+c+d < 1$) on said buffer layer, wherein

said step of growing the buffer layer comprises growing said buffer layer to have a film thickness in the range from 50 \AA to 300 \AA .

Claim 2 (Original) The method of forming a nitride-based semiconductor layer according to claim 1, wherein

said step of growing the buffer layer comprises growing said buffer layer at a growth rate

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of at most 51 Å/sec.

Claim 3 (Currently Amended) The method of forming a nitride-based semiconductor layer according to claim 1, wherein

said step of growing the buffer layer comprises growing said buffer layer at a growth rate ~~in the range from 16 Å/sec to~~ of at most 42 Å/sec.

Claim 4 (Original) The method of forming a nitride-based semiconductor layer according to claim 1, wherein

said step of growing the buffer layer comprises growing said buffer layer at a growth rate in the range from 25 Å/sec to 29 Å/sec.

Claim 5 (Original) The method of forming a nitride-based semiconductor layer according to claim 1, wherein

said step of growing the buffer layer comprises adjusting the growth rate of said buffer layer by the supply amount of a group III element supplied at the time of growing said buffer layer.

Claim 6 (Canceled)

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Claim 7 (Original) The method of forming a nitride-based semiconductor layer according to claim 1, wherein

said step of growing the buffer layer comprises growing said buffer layer to have a film thickness in the range from 100 Å to 200 Å.

Claim 8 (Original) The method of forming a nitride-based semiconductor layer according to claim 1, wherein

said step of growing the buffer layer comprises growing said buffer layer at a substrate temperature in the range from 500° C to 700° C.

Claim 9 (Original) The method of forming a nitride-based semiconductor layer according to claim 1, wherein

said step of growing the buffer layer comprises growing said buffer layer at a substrate temperature in the range from 550° C to 650° C.

Claim 10 (Currently Amended) A method of manufacturing a nitride-based semiconductor device, comprising the steps of:

growing a buffer layer of $\text{Al}_x\text{Ga}_{1-x}\text{N}$ ($0 \leq x \leq 1$) on a substrate at a growth rate of at least 16 Å/sec; and

growing a nitride-based semiconductor layer including an active device region on said buffer layer and made of $\text{Al}_a\text{B}_b\text{In}_c\text{Tl}_d\text{Ga}_{1-a-b-c-d}\text{N}$ ($0 \leq a < 1$, $0 \leq b < 1$, $0 \leq c < 1$, $0 \leq d < 1$, $a+b+c+d < 1$) on

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said buffer layer, wherein

said step of growing the buffer layer comprises growing said buffer layer to have a film thickness in the range from 50 Å to 300 Å.

Claim 11 (Original) The method of manufacturing a nitride-based semiconductor device according to claim 10, wherein

said step of growing the buffer layer comprises growing said buffer layer at a growth rate of at most 51 Å/sec

Claim 12 (Currently Amended) The method of manufacturing a nitride-based semiconductor device according to claim 10, wherein

said step of growing the buffer layer comprises growing said buffer layer at a growth rate ~~in the range from 16 Å/sec to~~ of at most 42 Å/sec.

Claim 13 (Original) The method of manufacturing a nitride-based semiconductor device according to claim 10, wherein

said step of growing the buffer layer comprises growing said buffer layer at a growth rate in the range from 25 Å/sec to 29 Å/sec.

Claim 14 (Original) The method of manufacturing a nitride-based semiconductor device according to claim 10, wherein

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said step of growing the buffer layer comprises adjusting the growth rate of said buffer layer by adjusting the supply amount of a group III element supplied at the time of growing said buffer layer.

Claim 15 (Canceled)

Claim 16 (Original) The method of manufacturing a nitride-based semiconductor device according to claim 10, wherein

said step of growing the buffer layer comprises growing said buffer layer at a substrate temperature in the range from 500° C. to 700° C.

Claim 17 (Original) The method of manufacturing a nitride-based semiconductor device according to claim 10, wherein

said step of growing the nitride-based semiconductor layer comprises forming as said active device region a light emitting layer or an active layer in a semiconductor light emitting device, a core layer in a waveguide device, an I layer in a PIN photodiode, a pn junction portion in a photodiode or a hetero-junction bipolar transistor or a channel portion in a field effect transistor.

Claim 18 (Original) The method of manufacturing a nitride-based semiconductor device

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according to claim 10, wherein

said step of growing the nitride-based semiconductor layer comprises forming a cladding layer of a first conductivity type, an active layer and a cladding layer of a second conductivity type in this order.

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REMARKS

Claims 1-5, 7-14 and 16-18 are pending. Claims 1, 3, 10 and 12 have been amended.

Prompt and favorable examination on the merits is earnestly solicited.

In the event that this paper is not timely filed, Applicants respectfully petition for an appropriate extension of time. Please charge any fees for such an extension of time and any other fees which may be due with respect to this paper, to Deposit Account No. 50-2866.

Respectfully submitted,

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